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Some Experiences of a Sterility Officer*

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It is a great pleasure to have the opportunity to tell you some of my reactions to bovine infertility after three years' specialisation on the subject. It is the clinical side of the picture in which most of us here are primarily interested, and the intention is to keep practical considerations to the fore.

The most frequent case encountered in the field is the regularly "turning" cow or heifer. The farmer's main interest is whether she will breed again, and, if so, how soon? Economic considerations are the alpha and the omega. It is wasteful in time, energy, byre space and feeding-stuffs, besides being damaging to one's reputation, to continue to treat a cow when she can be classed as a definite barrener. In this paper, therefore, I propose to discuss the differentiation of the permanently sterile from the temporarily infertile beast. It is assumed, of course, that such factors as a faulty bull, malnutrition and poor hygiene have already been ruled out.

In my experience, the commonest conditions encountered by the clinician, enabling him to give with assurance a prognosis of absolute sterility, are as follows, approximately in order of their general incidence :—

1. Cicatricial adhesions in the ovarian region.
2. Gross indurations in various parts of the genital tract, usually parturient or post-partum in origin, manifested by chronic abscess formation, localised cicatricial swellings, strands of adhesive tissue to the neighbouring organs, parametritis, etc.
3. Long-standing pyometras.
4. Advanced nymphomaniacs.
5. Mal-development of the genital tract, *e.g.*, in "white heifer disease" and freemartinism.
6. Miscellaneous.

1. Ovarian and Bursal Adhesions and Salpingitis

This group includes all those animals in which careful rectal palpation reveals the presence of a thickening in the immediate vicinity of one or both ovaries, usually associated with partial or complete obliteration of the ovarian bursa, and sometimes accompanied by a palpable salpingitis.

W. W. Williams[1] states that 15 per cent. sterility cases show tubal lesions, about half of which are confined to the ovarian end of the Fallopian tube. Insufflation of the uterus to reveal patency of the oviduct has not proved practicable but one can palpate it in great detail per rectum.

Radiographically, it has been shown that uterine irrigation may even carry infection into the peritoneum. The origin of tubal disease is variously attributed to a secondary infection from a cervicitis and metritis, unskilled or rough palpation of the ovaries, transmission by the bull, and infection *via* the milk at calfhood.

His namesake, W. L. Williams[2], has encountered the majority of such lesions after a retained afterbirth or metritis, and has frequently observed an absence of uterine cotyledons in the corresponding horn, indicating a prior placentitis. Tuberculosis is not a common cause. A cystic corpus luteum in the proximal ovary is often co-existent in other cases, infection of the crater having occurred after ovulation.

Quinlan[3] gives a 15 per cent. incidence of tubal disease in S. Africa, and agrees with causes mentioned above. The affections have been met most frequently in herds with a high incidence of abortion and metritis, and where repeated irrigations with strong antiseptic solutions have been employed. He differs from the American workers, however, in finding the condition rare in heifers.

Rowson[4] observed a 13 per cent. incidence of bursal adhesions in 300 odd abattoir specimens. Eight were affected on the left side only, 14 on the right, and 18 were bilateral; most of the latter were classed as severe cases, definitely preventing conception.

He classified the pathological changes into three kinds :—

(*a*) Severe connective tissue bands involving Fallopian tube, bursa, ovary, and frequently uterine horn.

(*b*) Hydrosalpinx plus slight bursal adhesions, often with a cyst in the ovary.

(*c*) A spread from tuberculous peritonitis, involving the uterus in all cases.

It is emphasised that one must assess the degree and extent of the bursal adhesions before arriving at an accurate prognosis *in vivo*. Rowson did not commit himself as to possible causes, but, working together, we[5] found that they were not a frequent accompaniment of short-lived pyometra cases *per se*.

Davison[6] discovered a 25 per cent. incidence in 100 abattoir carcases, and was impressed with the number of fibrous strands stretching across from ovary to bursal wall in those animals having had a corpus luteum expressed a few hours previously. He regards these strands as forerunners of bursal adhesions, and indicates that this fibrin-organisation may well take place similarly in the haemorrhage following normal ovulation.

Latterly, I have had the opportunity of examining some 1,250 odd infertile cows and heifers, many of them on several occasions. The presence of definite ovarian adhesions has been recognised clinically in 50 animals, or about 4 per cent. Diagnosis has been made by the finding of complete or partial obliteration of the bursa, combined with some abnormal thickenings of the region. The standard method[1,4] of introducing the fingers into the bursa has been employed. As no clinical data have yet appeared on the subject in the literature of this country, it will be timely to give here a résumé of my observations. It will be appreciated that they are *in vivo* records only and that many slight sub-clinical lesions must have been missed, but they will, I think, demonstrate the possibility of detecting a large proportion of these non-breeders in the field.

Of the 50 affected animals, 19 were Shorthorns, 12 Guernseys, 9 Jerseys, 5 British Friesians, and 5 crossbreds; this is roughly proportional to the cattle population in the district, except that the Channel Island incidence is rather high. Three cases were in maiden heifers, 6 in first-calf heifers, and 41 in cows; the cows had had an average of three calves each. The condition was encountered from one month to two years after the last calving, with a mean of seven months post-partum. The cattle had had an average of 3·6 fruitless services each. Bursal adhesions were never met in a pregnant animal, which is hardly surprising in that they would only be palpable for the first three months or so, and would not be searched for specifically.

The aetiological factors have been classified according to the predominant finding or history as follows :—

(*a*) Following a retained placenta, sometimes superseded by a persistent purulent metritis : 10 cases.

(*b*) Following a history of "whites" or in the presence of a pyoid discharge : 15 cases.

(*c*) Associated with ovarian cysts : 5 cases.

(*d*) Probable tuberculosis : 4 cases.

(*e*) Resultant from rough rectal manipulation : 2 cases.

(*f*) No apparent cause : 14 cases.

From these figures, it is seen that in just half the total number of patients there was definite proof of a co-existing or pre-existing metritis, which frequently resulted from a retained placenta or dystocia. It is probable that in several more animals a slight unnoticed uterine infection was present for a transient period. Of the total, four cows actually aborted, whilst four more out of twelve blood tests were positive; thus, again, approximately half can be considered to have been infected with *Br. abortus*. Most of the remainder had been inoculated with No. 1 vaccine so the agglutination test would have been valueless. Several of the infected animals showed the simultaneous presence of thin-walled cysts, either in the ovary or adjacent to it in the fimbriated end of the Fallopian tube.

Although in only two animals was it established that rough manipulation, consisting of removal of the corpus luteum, gave rise to adhesions in the ovarian adnexa, it is possible that in several more their onset was accelerated as a result of amateur or professional treatment. Fifteen out of 25 animals in groups (*a*) and (*b*) had been treated, mostly by iodine irrigations and stilboestrol and 7 out of 14 in group (*f*) had been likewise handled. It is significant that on the two farms where the incidence of adhesions was greatest, veterinary treatment was extensive, and attempts at emulation carried out regularly, by owner and stockman respectively.

In the remaining few animals with a completely normal and clean history, including the maiden heifers, it is my opinion that the condition may be designated as a "physiological hazard," a term suggested by Wright[7] and Davison[6]. This expression denotes an adherence of the fimbriae to the site of rupture of the ovarian serosa, occurring spontaneously in some animals through the medium of the blood-clot following normal ovulation. In the abattoir, I have seen such adherences extending from the mesosalpinx to the corpus

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luteum of oestrus, and there is no doubt that they occasionally appear in normal animals; whether they persist as clinical bursal adhesions or gradually organise to negligible proportions is difficult to establish precisely. This idea is supported by the findings of Rowson[4] and myself that unilateral adhesions are commoner on the right than the left side. It is accepted that ovulations are more frequent in the right ovary than in the left ovary in dairy cattle. Erdheim[8] found a preponderance of 1,015 right horn pregnancies to 474 left horn ones in the slaughter house. I have records of 362 right ovulations compared with 259 left ones in infertile animals, and 90 right-sided pregnancies as opposed to 63 left-sided ones. Wright considers that these "physiological adhesions" are an important cause of sterility but he cannot detect most of them accurately during life. I agree that it is impossible to assess some of the early or slight changes clinically, but support Williams's[2] and Quinlan's[3] assertion that, with experience, one can differentiate most of these affections by methodical rectal manipulation.

One further possible causal factor may be mentioned, and that is heredity. On one farm, at different times, I encountered three closely related cows showing adhesions of various types, suggesting an hereditary predisposition to such lesions.

As regards the bacteriological picture, no consistency was noted in the findings of uterine swabs from affected cows. *B-haemolytic* and "greening" streptococci and *C. pyogenes* were the most frequent invaders but coliforms, diphtheroids, micrococci, anthracoids and *B-haemolytic* Gram-negative cocco-bacilli were all recovered on occasion.

The clinical manifestations were somewhat varied but showed a common pattern. As a rule, the two layers of the ovarian bursa were firmly adherent, giving rise to a perceptible thickening of the mesosalpinx. Usually the pouch was completely obliterated but sometimes one finger only could be introduced to the depth of one's finger-nail. The ovary was either distinct, attached to the end of this thickening, or completely embedded in fibrous tissue, forming a hard, irregular mass, up to a cricket ball in size, sometimes being anchored to the uterine horn. Occasionally, a number of small friable nodules could be felt, covering the surface of the ovary, breaking away readily to the touch; these were usually associated with tuberculous peritonitis.

The lesion was confined to the left side in ten cases, and the right in 23 instances, and was bilateral 17 times; the latter were always unequal in extent. A unilateral salpingitis was co-existent in seven animals, and bilateral salpingitis in four. In all these cases, the oviduct was distended to the thickness of a cigarette, and on four occasions, a definite beading impression was recorded. In other cases, an enlargement, similar in size and feel to the ovary, was palpated about an inch from the real organ, and *post-mortem* examination or ovariectomy revealed it to be a condition of hydrosalpinx, the tubal walls being bound together to form a localised swelling.

Out of the 50 recorded histories, only two cows were known to become pregnant afterwards. One was a case of slight severity, merely showing an acorn-sized nodule near the right ovary; she conceived later on the right side. It must, however, be admitted that other animals have been encountered in which bursal adhesions of slight extent have been suspected by the presence of a shallow or small ovarian pouch, or in which it is well-nigh impossible to palpate the bursa at all; in some of these cows pregnancy has supervened on the affected side.

Taking these figures by and large, however, it is evident that the future breeding prospects of affected animals are decidedly poor, even in unilateral cases, which formed 33 of the total. It is assumed that in many of these individuals early pathological changes, non-detectable clinically, have commenced on the opposite side. This hypothesis is illustrated in specimen No. 11.* The left ovary was completely embedded in scar tissue, with a cystic distension of the pavilion, the right bursa being normal. At *post-mortem* examination, three months later, the left ovarian region was as before, while the right pouch had become partially eliminated, it being possible to introduce only one finger into it.

In considering the fertility rate of the above series of animals, it should be pointed out in all fairness that it is probably only the most chronic cases that are brought to a Sterility Officer's notice. One may state, however, without fear of contradiction, that all individuals showing a bilateral salpingitis or marked bursal adhesions are definitely incurable, and that the outlook in unilateral cases is distinctly unfavourable.

Quinlan[3], in finding that a cystic corpus luteum is a frequent accompaniment of salpingitis, regards a long inter-ovulation period as being a useful diagnostic sign. My results do not confirm this. In 27 animals oestrus was fairly regular, in six it was infrequent or absent, whilst in five it was too frequent or continuous.

Recommendations have, at times, been freely made concerning the insufflation of the Fallopian tubes as a diagnostic and curative procedure. In order to damn this impossible project once and for all, it was decided to do a simple experiment in the slaughterhouse. Three living heifers and two cows, one affected with metritis, had air blown into the uterus by means of a catheter inserted just through the internal os. Twenty squeezes of a Higginson's enema pump were given, corresponding to the introduction of about 600 c.c. air, and in all cases some could be detected being expelled through the cervix at each pump. On *post-mortem* examination, within a period of three hours, a small rupture could be detected at the middle of the lesser curvature, of the left horn in two animals, and of the right horn in two more, only one uterus remaining resistant. The break was ½ to 1 cm. long with an area of congestion around for 6 to 10 cm., the air escaping in between the double layer of peritoneum constituting the broad ligament. In no case was the rupture very serious and it might have been missed on a cursory examination, but such an occurrence can hardly ameliorate future breeding prospects.

To conclude this section on bursitis, a few remarks may be made on general control. Great care must be taken during dystocia to avoid undue injuries which would act as foci of infection. Retained placentae must be fastidiously removed in their entirety at the appropriate moment without excessive force of tearing, and fluid must not be allowed to remain in contact with the raw surface. Involution may be accelerated with oestrogens and pituitrin hypodermically. Delay service until the uterus is perfectly clean. Do not employ repeated strong antiseptic or iodine irrigations. Avoid rough ovarian handling or removal of the corpus luteum in susceptible subjects. In slight unilateral cases, leave entirely alone and re-examine in six weeks. It should be realised that the majority of cases cannot positively be prevented, and the veterinarian must rely on the early detection and condemnation of affected beasts.

2. Gross Genital Indurations

Under this heading, I wish to refer to all those "lumps and bumps" encountered in various parts of the genital tract from time to time. I have only 18 recorded cases, but the total number met probably equals that of bursal adhesions. The weird uterine distortions of many such cases are not amenable to accurate clinical description. In 15 of reported cases, there was a history of dystocia or retained placenta or both, and it is probable that the origin is almost invariably a complicated parturition.

The first condition to be described is somewhat spectacular and may be referred to as a para-metritis or peri-metritis. On introducing the hand *per rectum*, it immediately impinges on a huge, hard, amorphous mass, which turns out to be the uterus; no other part of the genital tract can be palpated. There are usually co-existent symptoms of severe straining of sudden onset, loss of appetite, a drop in milk, and fever. A foetid, purulent discharge, sometimes blood-tinged, is expelled at intervals. All eight cases on record appeared within two months after calving, mostly within three weeks. Two developed after an intractable retained placenta; one arrived on the scene following dystocia. One cow showed the usual systemic symptoms one week after 20 mg. stilboestrol had been given and six weeks after calving. Another animal, a post-partum nymphomaniac case, started straining immediately after 100 mg. stilboestrol intra-muscularly. Two more became ill directly after 50 mg. stilboestrol-in-oil had been instilled into the uterus; in one of this pair, a small piece of retained placenta was undergoing necrosis in the uterus, and the tenesmus merely increased considerably in intensity.

One animal was examined *post mortem*. The uterus, ovaries and associated organs were in the form of a gigantic mass, the size of several footballs. Adhesions passed to rectum, rumen and lateral pelvic walls. The uterus contained much putrid fluid, the wall being greatly thickened; in it, as well as in the neighbouring organs, there was multiple abscess formation. This cow was the only one of the eight that had to be slaughtered, owing to rapid emaciation. The others gradually recovered, but, of course, would be no good for future breeding.

A ninth animal presented somewhat similar autoptic findings. The history and examination revealed that there had been foetal death at two and a half months, of unknown cause, followed by putrefaction and a chronic discharge, with a little straining. *Per rectum*, the uterus was fairly large, like a well-marked pyometra case, but on its dorsal surface were felt a number of oval, stalked structures like pedunculated polyps. After slaughter at a later date, these were found to be localised abscesses, adjoined to the uterus and lumbar roof by thin strands of connective tissue. Other abscesses were present in the thickness of the uterine wall and in the intestines, causing loops of ileum to become adherent to each other.

The aetiology of this type of condition would appear to depend on two factors. Firstly, a prerequisite is the presence of a highly susceptible uterus, usually not fully involuted; one that has had a bad mauling during or after parturition, and which acts as a large infective focus for any micro-organisms present.

* A number of specimens, illustrating conditions dealt with by the essayist, was on view.

C. pyogenes has been isolated from the discharge on three occasions, and where systemic reactions are evinced, the anti-serum or toxoid would seem worthy of a trial. The second or activating causative agent is the manual handling of the devitalised uterus, combined with any therapeutic product inducing strong uterine contractions. Thus a large dose of stilboestrol syringed into the uterus is the most dangerous procedure, and an irritant, *e.g.*, iodine solution, by a similar route, or stilboestrol hypodermically is undesirable. From this point of view, the use of pessaries, or the syringing and syphoning back of some non-irritant antiseptic solution, is the treatment of choice.

It may be added, in parenthesis, that these cases of para-metritis, and similar ones of milder nature, are usually accompanied by adhesions of the ovarian bursa, and add support to the contention that ascending infection is the most frequent cause of the latter.

Spherical circumscribed indurations, nearly always resulting from parturient injuries or placental necrosis, have been palpated in most sites of the genital tract. Similar fibrous swellings arise on farms where they pride themselves on their home treatment of sterility. The usual size is that of a golf-ball to a tangerine and the most frequent locations are under the short uterine body or at the base of one horn. In long-standing indurations, the enlargements may consist entirely of scar tissue, and cervical discharges are quite clean. Usually, however, there is present a chronic purulent discharge, which persists in spite of oestrogen therapy and repeated uterine irrigations ; the syndrome, in fact, resembles that of an infected wound with no drainage. The breeding outlook is most unfavourable, and it is best to fatten such animals off.

Occasionally, I have discovered thin strands of fibrous tissue passing from the uterine roof to the rectum. Rightly or wrongly, I have attributed this to uterine perforation with a catheter, as the animals had all been irrigated a short time previously. Such a finding is not serious in itself, unless much iodine has been introduced into the peritoneal cavity.

One cow has been seen, in which the right cornu was anchored forward by adhesions running from its mid-point to a site unknown. A poor prognosis was given ; she conceived on the right side to the next service.

In practice, it is wise to regard any palpable enlargements in the genital tract with great reserve. Whilst the majority of indurations have appeared of approximately the same dimensions at subsequent examinations, I have been surprised to find a considerable diminution in size in some animals. Presumably, they were in the acute inflammatory stage at the initial inspection, and cicatrisation was nearly complete at the next one. This provides us with a moral. If in doubt, let us record our findings, leave the animal alone for a month, re-examine, and compare.

3. Pyometra

My opinions about bovine pyometras have been aired elsewhere[6] and there is no point in reiterating them here. It may, however, be beneficial to add a few remarks concerning the sporadic protracted case over which the Sterility Officer is asked to wave a magic wand by optimistic stock-owners.

The long-standing infected uterus, epitomised by a thickened wall and gross distension of both uterine cornua, should be tackled guardedly. In all probability, the genital tract has undergone such pathological changes that future conception is physically impossible. Thus the caruncular areas are largely replaced by scar tissue under the influence of lengthy inflammatory and pressure changes, and successful nidation is barred. This explains why some cases of pyometra respond well clinically to oestrogen and uterine irrigation therapy, with the production of a normal-sized uterus and a clear mucoid secretion, and yet the cow subsequently " turns " to the bull with monotonous regularity. A frequent coincident phenomenon is the persistence of the corpus luteum as a small, deeply embedded body. This persistence only occurs in pregnancy, mummification or pyometra. The corpus luteum may remain after the successful evacuation of the pus has been completed, thus preventing the restoration of the normal oestral rhythm.

Specimen No. 14 indicates another possible end-result to the prolonged invasion of the uterus. Ordinary methods failed to promote involution, but after intensive oestrogenic stimulation, expulsion of the uterine contents was obtained at the price of extensive adhesions.

One must judge each case of purulent metritis on its own merits. Promote uterine contractions with one or two injections of stilboestrol dipropionate or dibenzoate hypodermically, or intra-uterine in obstinate patients. Follow up with several uterine irrigations of acriflavine solution and/or sulphanilamide suspension at weekly intervals, and then give a rest period. If these measures do not result in restoring uterine tone and promoting ovulation, withdraw from the case as honourably as possible.

I do not consider that specific serum or vaccine therapy has any indication in these conditions, since the problem is essentially an endocrinological one. Bacteriological findings have been decidedly queer. Thick, yellow, pus-like discharge sometimes proves sterile, particularly if swabbed after stilboestrol has been administered ; and clear, mucoid secretions often give quite an imposing flora of micro-organisms.

4. Advanced Nymphomaniacs

Here, again, results have been very disappointing. The orthodox treatment of rupturing the invariable ovarian cysts has answered in a few early cases, but, once pronounced diagnostic symptoms have appeared, the chance of future breeding is remote. These symptoms comprise the raising of the tail-head, the constant mounting of other cows in oestrum (though frequently not permitting service by the bull), cracking sounds from the pelvic bones, flaccidity of the uterus, often accompanied by a muco-purulent discharge, and constantly recurring follicular cysts in both ovaries. I have known two affected cows become pregnant after they had been given up as hopeless, so evidently there is a low natural recovery rate.

Luteinising hormone theoretically should induce the required ovulation and prevent further cystic formation, but, in my hands, Antuitrin " S " and Gonan in doses of 1,000 to 2,000 I.U. subcutaneously, combined with repeated manual rupture of the cysts, has proved useless. The Americans claim success with massive doses of L.H. (10,000 I.U.) but the price makes this prohibitive for common use. Large doses of stilboestrol, and pregnant mares' serum, have also been used by me without effect.

5. Hypoplasia of the Genital Tract

Under this category come animals showing an arrested development of the tubular genitalia to a greater or lesser degree, *e.g.*, " white heifer disease " and freemartinism. Since they are forming the subject of a special paper, now in preparation, no further reference will be made to them except to draw your attention to the specimens.

6. Miscellaneous

In this final group, a diverse range of lesions and factors may be involved. In many cases, evidence of bad herd management, malnutrition or recognisable pathological features is present. After long experience, however, one is forced to admit that in a large number of persistently infertile animals, there is nothing abnormal to be discovered clinically after a conscientious examination. On some farms, such animals become pregnant after a variety of treatments have been adopted. On other farms, consistently poor results are experienced. One can often give a rough forecast of the percentage success to be expected at a given place, whatever curative methods are used, simply by knowing the previous history of the farm and appraising the herd management. Most of the clinically normal infertile cows conceive eventually, provided the owner is patient and they are served enough times. This will only be done in the case of outstanding cattle. And it is all to the good. The veterinary surgeon's most potent weapon in the control of sterility *en masse* is a policy of rational culling. This paper has endeavoured to be a guide to that end.

A tone of scepticism, or even fatalism, may have been detected in parts. A Sterility Officer certainly becomes very sceptical about many of the things he reads and hears on the subject. The problem is so vast that one cannot just talk about endometritis, iodine, 80 per cent. results, and the like, and leave it at that ; they are just so many words. Each lesion, each symptom, each fertilisation, are mere parts of a complex whole, which affects the very foundations of the animal's physiological make-up. We must get down to fundamentals, and find out what is, or is not, happening. We must also keep our perspective and look at the problem, sometimes, through the agriculturalist's eyes. He breeds, of necessity, for milk, for butter fat, for shape, for colour ; he breeds less for stamina, and not at all for fertility. Thus sterility is becoming increasing prevalent. But I do not despair for the future. Impotent strains have always bred themselves out in the past. They will continue to do so now.

Summary

1. The lesions giving rise to absolute sterility are enumerated.

2. The clinical findings of 50 cases showing adhesions of the ovarian bursa are analysed. The commonest cause was an ascending infection from a retained placenta and/or metritis ; less frequently, the lesion is found as a " physiological hazard " ; from tuberculous peritonitis ; in association with ovarian cysts ; and as a result of rough rectal manipulation. The practical recognition and significance of ovarian bursitis is discussed.

3. The occurrence of post-partum indurations of the genital tract, multiple abscess formation, para-metritis and gross uterine adhesions is considered.

4. Brief mention is made of pyometra, nymphomania and genital hypoplasia.

(*Concluded at foot of col.* 1, *page* 472)

The Examination of the Stud Bull for Soundness

DISCUSSION BY THE CENTRAL VETERINARY SOCIETY

(*Continued from page* 464)

General Discussion

Mr. Clive Haselden: Regarding the general examination of the bull, he did not think that we, as a profession, could be expected to know the finer show points of the various breeds of bulls. Further, he found it very difficult to give a valuation of a bull for a client who intended purchase and personally he never committed himself to this. He thought the veterinary surgeon should be able to give some opinion as to general conformation. He always liked to see a bull with a good masculine appearance, level top line, strong of rib, great depth through the heart and good bone. Also, the teat spacing of the bull should be right, as should their shape and size. The conformation of the hind legs he thought was very important: he hated to see a bull with a weak hind leg and a sickle hock. If such bulls were kept tied up they would go completely off their legs. He also examined the eyes and the heart; the latter was definitely a thing to be listened to; one bull he knew was subject to heart attacks.

With regard to bulls in artificial insemination centres—and that was where he had had his greatest experience—he endorsed Mr. Stewart's statement that every bull must be treated as an individual: the psychology of bulls was a very difficult one. Under epidural anaesthesia he examined the penis of one bull which had filled the artificial vagina with blood. He had associated the bull's reluctance for coitus with pain, and it was only by giving him a complete change of environment that the bull came back to his work.

In respect of samples of semen, he emphasised his agreement with what Mr. Stewart had said about the importance of density and the wave movement of the sperm. Also, he attached importance to its storing quality after it had been buffered. He thought it was very difficult to assess what degree of motility was required in stored semen to produce fertility; in his view that could only be done by experience of frequently examining those samples after they had been stored for 5, 6, 7 or more days. He noticed much variation in the storage quality of semen from different types of bulls—the semen of the heavy as well as of the light breeds. In the Shorthorn they found the period of fertility to be about five days, as a rule, but one particular bull, which gave a good density, with a good wave movement, had a storage quality limit of about three days, and a fertility rate of about 50 per cent. That was why he attached considerable importance to the storage quality of the semen.

Mr. H. W. Steele-Bodger: Each of the speakers had given them more than one "tip" and plenty of food for thought.

Mr. Scorgie had mentioned heredity factors, and their importance could not be over-rated. An outstanding instance of the transmission of hereditary characteristics was that of a Friesian bull which had won a great deal at shows and transmitted to all his offspring a smooth tongue, with the result that the latter, which were not as well fed as himself, were "poor doers." A breeder in the Tamworth district had a Shorthorn bull with a nick out of the right ear, which abnormality he passed on to every one of his offspring.

A point that had not been mentioned, in considering the daughters or sisters of a bull which it was proposed to use at artificial insemination centres or otherwise, was the question of supernumerary teats. They were all satisfied that that was a characteristic which was transmitted by the bull, and supernumerary teats were serious, as they were conducive to mastitis. On more than one occasion, moreover, he had found tuberculous supernumerary teats. In the recent debate on milk in the House of Lords, Lord Iveagh had stated that he had tried to eliminate *Streptococcus agalactiae* infection from one of his large herds and that reservoirs of infection were located in the supernumerary teats.

Mr. Scorgie had stated that hormones were of no service in treating the "slow" bull, but he (Mr. Steele-Bodger) had found pregnant mare's serum to be of value, and of permanent value, in most cases. He had found that 1,500 P.M.S. units gave temporary improvement and 3,000 units to be of permanent value. The results obtained within 24-48 hours of the injection of P.M.S. were very spectacular.

Mr. Scorgie mentioned the case of the bull with a swelling in front of the sacrum. Mr. Haselden would know of another bull that had a swelling in front of the sacrum on the right side and that was incapable of service. The only abnormality was a cord-like swelling across the back, rather in front of the sacrum, with a depression behind the last rib. The bull was sold as a stock-getter, but was unable to serve, and this was the cause of serious dispute.

He was interested to hear the remarks about silage being a contributory factor, or even an actual cause, of "slowness." He knew a herd for which nothing but silage had been used for three years; there was no infertility in that herd and no report of "slowness" on the part of the bull. In fact the owner said that he had never before experienced such uniformity of milking and regularity of conception as he had done since he adopted the silage principle, but he said, "You must grow your silage as silage, and not expect any old crop to make good silage."

In regard to orchitis due to *Br. abortus*, he thought that was much more common than was generally recognised. In his practice at that time there were three bulls with orchitis which was definitely traced to *Brucella abortus* infection. They decided to castrate one bull, but the scrotal wall and adjacent tissues were an inch thick and, when they cut through, the testicle dropped out. It was suspended in fluid and Dr. McEwen reported that he found *Brucella abortus* in pure culture in that fluid. He (the speaker) thought there was usually some bilateral infection in those cases because such animals became totally sterile.

He believed that many bulls underwent a period of low fertility during the winter months and that if one was not called in till late March or April to investigate the infertility in a herd, one had actually missed the peak and by that time the trouble had started to resolve itself. He would like to hear what the principal speakers had to say on that subject.

He was interested in Mr. Conn's aspect of presentation of his case: he thought it had much to commend it. He felt sure that what Mr. Scorgie had to say about young bulls being too fat had a great deal to do with the mania for forcing animals. Many bulls were got up for show under twelve months; they were grossly fat and they were often impotent: that applied also to pigs and, in particular, to sheep. They should deprecate the showing of young animals at an age when forcing was likely to be detrimental to their subsequent breeding.

He had tried the tricin test, and Lamont, Kerr and Shanks had, he believed, all tried it out in infected herds in his district but with disappointing results. To be successful it would appear that the product must be made from the infection which was within the locality: what would operate in Northern Ireland would not necessarily operate in England; he thought there must be some specificity about it.

Colonel Rees-Mogg: As an owner of a pedigree dairy herd the subject "The Examination of a Stud Bull for Soundness" was a most important one. He had difficulties with regard to service with some of his own bulls, and one which he had been lent. The best treatment was to give them food that was not too bulky, beans and ground-nut cake and a course of strychnine. With young bulls by far and away the best treatment was to turn them out in the field with the heifers. No doubt the vitamins in the grass all helped and also a bull always knew many hours ahead when a heifer was coming on bulling and carried on a mild flirtation for some time before actually serving her. Unfortunately it was often impossible to turn *old* bulls out in the fields and of course if there should be a footpath, one was not allowed to do so. There was no doubt that one had to study the psychology of the cow. To give an example, when he was out at the International Veterinary Congress held in New York, he went on to Canada afterwards and saw a super cow house and when he went in, he saw 60 cows all lying down and chewing their cuds, and the wireless playing a pretty valse. He had never seen every single cow lying down before in a cow house.

At a show of cattle in Toronto he was very surprised to see old British Friesian bulls, or Holsteins as they were called in Canada, being led round the ring with only a halter on.

He had recently been involved in a law action over a bull he had sold, and before the case was due to come on, he got four penises from slaughter-houses in London and Birmingham and revised his knowledge of anatomy so as to have the facts all clear when being faced by a barrister in the Law Courts. The length of the penis of a bull was from 4 to 6 feet, and not 2 to 3 feet. As it turned out the other party withdrew their action, so the proceedings terminated.

The facts were as follows. He entered a bull 17 months old for a sale, and though a bull over 14 months was sold with a guarantee that he was a good stock getter, he put in a note as well in the catalogue saying that he "had been used effectively and was a good worker." He had served about twelve heifers and several of them had gone over seven weeks. Also he had served three heifers ten days before the sale and on the morning of the sale had been seen masturbating with his penis fully extended. The purchaser told him some months afterwards that the bull would not serve his cows and eventually acting on the Rules of the British Friesian Society, he got an independent veterinary surgeon to examine the bull, who reported that he had seen the bull, and though he had the inclination yet he was not able to protrude his penis. He then asked him to throw the bull and see if there was any injury, and he reported later that there was a scar between the end of the penis and the scrotum and that adhesions had formed which prevented the bull from extending his penis. Luckily the purchaser withdrew the action.

At the Annual Meeting of the British Friesian Society he proposed the following addition to the Auction Rules:—

"A bull of not less than 12 or 14 months of age at the time of the sale shall be sold with a guarantee that he is a good stock getter. Any claim to the contrary must be made to the auctioneer immediately any evidence is available, and, in any case, not later than three months from the date of sale, and must be accompanied by the certificate of an independent veterinary surgeon that the bull's failure ***results from some condition existing in the animal at the time of the sale,*** and is in no way due to the state of the purchaser's females, or to injury suffered or disease contracted by the bull since the date of sale.

The vendor may withdraw any guarantee under this rule with regard to any animal or animals by giving one hour's notice to the auctioneer prior to the commencement of the sale."

Miss J. O. Joshua commented on the psychology of stud animals in general: she thought that was a very important point that had been raised by speakers that day. She had had a good deal to do with stud dogs, and there was no question that many of them were expected to serve under conditions which surely could not be regarded as entirely natural.

She was very interested to hear that turning a young bull out with heifers was recommended. Was it not possible that the general preliminary "love play" in which a bull would indulge with cows in a herd was the means of stimulating him? Stud animals were expected to serve immediately the female was presented to them, without any opportunity for normal emotional stimulation.

In dogs, certainly, colour had a large bearing on the matter. Obviously it did not have the same bearing in cattle, since with the pure breeds there was not much variation in colour; it was well known that certain dogs showed a marked preference for bitches of a certain colour.

Mr. J. B. White mentioned the condition amongst bulls known to breeders as "cross testicle" in which the testicle lay horizontally instead of vertically. He did not know if it was hereditary or again if it affected fertility. In a case seen recently in a young Shorthorn bull, the condition corrected itself within a few weeks, after which the bull appeared normal.

He would like to ask whether there was any evidence to show that the number of cryptorchids had dropped since the licensing of bulls had been in force; if that was the case it showed that cryptorchidism was an inherited factor.

Mr. D. N. Spriggs: Mr. Scorgie had referred to "slow" bulls. He agreed with previous speakers that the psychological factor was most important and that one had to deal with each individual according to its merits. One cause that had not been mentioned was "pure cussedness" on the part of the bull. He had seen this successfully overcome on occasion by a good thrashing.

With regard to treatment, Mr. Steele-Bodger had referred to the success he had attained with 3,000 I.U. of pregnant mare serum. He had tried that on a number of animals and probably in half of them there had been that spectacular improvement in 24 to 48 hours, but in all cases it had only lasted for from two to three weeks, and then the bull had returned to his old slow, lazy habits. They had tried, in the case of a bull with a cow in the yard, taking the cow away from the bull for a spell; this sometimes had the desired effect. Another method was to let a cow in oestrus mount the bull; that sometimes whetted his appetite.

It was common for young bulls to extrude the penis for only 3 to 4 inches. In such cases he had tried pregnant mare serum and in most of them that had righted matters in three or four months. Probably the time factor was the main cure. He had heard of one bull in which grasping the penis with a towel and giving it a good pull had apparently been effective.

On the question of how injuries to the limbs affected the bull's ability to serve, he was very surprised to find how little some of these injuries did affect a keen bull. A few weeks previously he had been able to collect a sample of semen from a bull very lame in one hind leg and slightly so in the other; the bull was able to mount.

In his experience when there was hypoplasia of the testicles the bull was always completely sterile. When a veterinary surgeon discovered an abnormality of the testicles in the course of examining a bull for soundness, he should regard the animal as potentially sterile and as likely to remain completely sterile.

He found that tuberculous orchitis had been preceded by a period of sterility before the orchitis manifested itself. In his opinion trauma was one of the commonest causes of orchitis. For testing a bull it was best to have a cow in oestrus, but that was not always possible and on the whole most bulls would serve a quiet old cow perfectly well.

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5. A few general opinions on bovine sterility are given.

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[6]Davison, W. F. (1944.) *Ibid.* **56.** 359.
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In the matter of the evaluation of semen, he agreed with Mr. Stewart that one needed a thick layer before one looked at it. Mr. Scorgie mentioned bulls, with apparently normal semen, which yet were sterile. He had seen such bulls, in which all the orthodox tests applied to the semen had proved satisfactory, and yet the bull never recovered its fertility. The evaluation of semen should be combined with obtaining an accurate breeding history. One did frequently find bulls of from 12 to 14 months with very poor semen; in most cases he agreed with Mr. Stewart that such bulls had a very good fertility, and that such a bull should be tested again after a short while. When going to a farm to test a bull one should ascertain beforehand whether it had been running out with the heifers, for such a bull would probably refuse to serve in the artificial vagina; after isolating the bull for about three weeks no difficulty was found, even when a cow used was not in oestrus.

He was glad nobody had mentioned the method of massaging the seminal vesicles to get the semen, because he had had very disappointing results from it. He had tried it on a number of occasions when he could not get a sample with the artificial vagina.

Colonel Rees-Mogg had referred to the definition of a "stock-getter." Legally a "stock-getter" was defined as a bull which, while he had got some stock, yet might be almost useless: it would be a good plan if that point could be clarified. He had seen a similar case of cross-testicle to that mentioned by Mr. White and, like him, he had found that in a few months it had returned to the normal position.

Dr. E. C. Amoroso referred to the psychological behaviour of the bull; this, moreover, was a factor which applied with equal force to the cow. He could not help feeling that this problem was very intimately related to the problem of ovulation, because it was generally said that ovulation was spontaneous in any animal. In the sub-primates ovulation was invariably the culminating stage in a long series of manifestations of "love play," and thus the provocation of ovulation was an exception which might in fact be the rule.

He would like to know how presumably pregnant mare's serum was effective in the cases referred to; was it an effect from the pituitary of the bull or was it a local effect?

The point raised with regard to the attachment of the penis was one of considerable importance. He wondered whether, in many of these cases, its attachment to the pthallic eminence continued after pre-natal life.

Dr. J. McCunn: He could add a tail-piece to Colonel Rees-Mogg's little story, because one of the reasons why the action was not proceeded with was that he (Dr. McCunn) was called in by the lawyers for the other side. He had a consultation with a noted K.C. employed by the complaining parties. The basis of his advice was this: that he said he knew Colonel Rees-Mogg was a man of the utmost repute; that he had records which could be checked, and that his statement about that bull having served the cow three weeks before sale could be relied upon and substantiated. Then, as regards whether the bull was incapable of serving or not, such examinations as had occurred he took no notice of whatsoever, because the fact that the penis of the bull, after the animal had been chloroformed, could only be drawn out 6 to 8 inches proved nothing. He (Dr. McCunn) told the K.C. that on occasion he had had to look at the penis of a bull which was a proved stock-getter and, in spite of that, when it was down and chloroformed, he could not get the penis out at all. That had happened on other occasions not only in his own practice but at the college.

As regards the length of the penis, there he thought Colonel Rees-Mogg had gone just a little too far. If a bull had one 1 feet 6 inches long it would either be an enormous animal or it would have some difficulty in storing it away in order to walk about. He had always gone on the assumption that an average bull's penis was, in the common phrase, "as long as an average man's walking-stick." His technical assistant had measured a number and found that the length varied from 2 feet 6 inches to 2 feet 10 inches, the length being taken from the insertion of the crura right to the apex of the glans and the specimens fresh.

Professor Macqueen used to say, in a jocular way, when he was talking about the examination of horses for soundness, that it was a very useful thing to go to the place the day before in order to make contact the night before, in the "local," with the groom who looked after the horse, so that when you attended to make your examination of the animal you knew all about it. So far as he could see, from that day's discussion, one would have to go to the premises a month before you examined your bull and you would have to take a psychologist with you; he was sure, also, after what Colonel Rees-Mogg had said, that you would be well advised to take your lawyer as well.

In regard to blindness in bulls, cataract had been mentioned. Cataract occurred in any animal, but the eye trouble in bulls that was of importance was actual blindness, to which was applied that omnibus name of "amaurosis." They could take it from him that that was an inherited condition and would go in blood lines. He knew one instance, within 100 miles of where Mr. Gould lived, in which it ruined the entire herd. An eye specialist friend of his came to the conclusion that the trouble was a choroiditis and Mr. Nettleship—a veterinary surgeon who became one of the leading eye specialists in England—had confirmed this years before.

One of the speakers brought in the heart. Well, what good would the bull be unless he had a good heart? The effort a bull had got to put into the act of copulation was as much as, if not more than, what would be required of him if he were put in a cart and made to pull a ton of coal down the street. He was thinking of calling in Mr. Spriggs to tackle a case in which he was interested now—a bull with arthritis of the hock: it stopped him doing his job. In view, however, of what Mr. Spriggs had said—that a bull could be very lame on one leg and have the other almost a swinger, yet he could perform his marital duty—it made him think that Mr. Spriggs would be a valuable witness for anyone wishing to contest a claim for inability or impotence.

In regard to the general examination of the bull, if one looked to the heart, the chest, the hocks and the eyes and saw him perform one could not go far wrong. He did not think it was their job to go into the question of breeding lines; the experts did that, and the veterinary surgeon went in afterwards to see that anatomically the animal was reasonably fit and well.

Professor G. H. Wooldridge: He had known Mr. Nettleship to whom Dr. McCunn had referred; he was a veterinary surgeon and was at one time one of his predecessors at the Royal Agricultural College, Cirencester, before he left the veterinary profession and became an eye specialist. He never lost his keenness in animal life and he kept a herd of Jerseys; indeed, it was his experience of meeting blindness in Jersey cattle that stimulated his interest in that matter. He never came to any positive conclusion, except that it was hereditary. There was nothing to see in the eyes on ordinary inspection; it was not until the behaviour of the animal was tested in walking that it was discovered that it was blind. The natural functioning of the eyes was a matter of importance to be observed in the examination of the bull for soundness, and especially in Channel Island breeds.

Certainly fertility was important in soundness, but examination on the lines outlined to them that day was quite impossible for the veterinary surgeon in a routine examination for soundness. So far as actual fertility was concerned, after having made an examination of the external genitalia and seen an effort to serve a cow, he would have to reserve any decision on further points that Dr. Stewart and Mr. Scorgie had mentioned. This might not be possible for weeks, so if one was to give a certificate of soundness that was as far as one could go.

Mr. Scorgie's definition of soundness was a very comprehensive and good one. He said he would include under soundness any conditions which he thought in future "will interfere with the usefulness of the animal." He would like to suggest that Mr. Scorgie should alter the word "will" to "may." He thought matters concerning unsoundness should be capable of being introduced into the body of a certificate of unsoundness.

Were they to state definitely that a bull was unsound because he was slow to service? He did not think one could; if the bull was capable of service one could draw attention to the fact that he was slow, but not legally include it as a definite item of unsoundness.

As to the length of the penis in the bull, was it not a fact that in sexual excitement and extrusion the penis of the bull was considerably longer than during quiescence, so how could one pass any opinion on the point when examining under anaesthesia?

He agreed that one should examine the herd in all these cases, because one knew how a defective herd might interfere with effective service in so many ways.

One matter of conformation was not mentioned, which he thought might have some bearing on the ability of the bull to effect service, and that was whether perhaps the bull was a little short of stature; or it might have an unduly large sternum and dewlap. He had in mind the case of a bull the muscles of whose back were very weak and sloping and which was quite unable to mount the cow properly. Amongst other things his huge sternum seemed to come in his way, rendering it impossible for him to effect a proper service. In such a case he thought one would be justified in saying that there was a temporary unsoundness which might be overcome later if the bull's general and muscular condition improved.

Mr. G. N. Gould: He was particularly interested in blindness in bulls. He had had some experience of the condition and he would not like it to go forward authoritatively from that meeting that it was for certain hereditary. He wished to ask Dr. McCunn at what period in the bull's life the blindness was first noticed? In one case within his experience the bull had been blind from calfhood and yet he knew of more than 60 of his stock which showed no evidence of blindness. The bull was apparently normal until four months old; then the blindness developed very suddenly. It was nursed along until it discovered the way to find its food. He knew other bulls with a similar history and he was wondering if Dr. McCunn was referring to congenital blindness or to this type, which was far more common and the cause of which was in his experience very obscure.

He agreed that pregnant mare's serum would stimulate "slow" bulls, but there was not infrequently a decrease of fertility after the injection for a number of services. Rest for two to three weeks after injection was beneficial.

He was quite convinced that breeding and management played a big part in the fertility of the bull. He had found, particularly in the winter time, that there was a great deal in the warmth in the bull box: nowadays one heard a great deal of the open-air management of bulls, particularly in artificial insemination centres. He had kept a record of herds in which the fertility was low, and it appeared that where the bulls were kept in reasonably warm surroundings in the winter time, fertility was higher.

He did not agree with Dr. McCunn's view that the veterinary surgeon should play no part at all in advising the owner as to the suitability of the bull for the purpose required. He found himself more and more often called upon to advise the owner as to the suitability of the bull to affect herd improvement. He thought it was an essential part of the work of a veterinary surgeon. Surely the farmer had the right to expect such advice just as much as the horse owner for whom one was examining a horse expected advice as to suitability.

The Replies

Mr. E. Conn: He had mentioned records to impress upon his hearers that if we were going to improve our stock in this country we must make scientific use of these records. He knew one veterinary surgeon who had rejected three bulls from the records. He agreed with Mr. Gould that it was the veterinary surgeon's duty to advise his clients as to the suitability of the bull to meet his requirements in the matter of herd improvement. With regard to Mr. Steel-Bodger's reference to the reduction of fertility during the winter, he thought that temperature of bull boxes played a part in preserving fertility, as did environment. He thought lack of exercise and the use of concentrated foods with the lack of vitamins accounted for a good proportion of this reduced fertility.

With regard to the tricin test for trichomoniasis, it had since been discovered that certain groups of this tricin antigen could be obtained which showed serological specificity. Antigen could be prepared from material from the regions in which trichomoniasis showed itself. The tricin test would certainly prove very useful as an adjunct in diagnosis.

He had encountered cross testicle several times and had found that it had no influence on fertility; he did not think it was hereditary.

Mr. D. L. Stewart said that he would like to have heard more from Mr. Haselden about the collecting of semen in ice cold test tubes as his own experience had been that it was detrimental to the semen. Mr. Haselden had raised the question of assessing the motility of stored semen. That was one of the major problems of artificial insemination centres. One usually considered a sample of stored semen showing more than 50 per cent. motility to be useable.

The point in the discussion which interested him most was Mr. Steele-Bodger's remarks about the low fertility of bulls in the winter. He, Mr. Stewart, had tended to take a different view on that subject. It seemed apparent to him when one was investigating anoestrus, that animals going into anoestrus were below normal fertility. He thought this was due to the cow rather than the bull, and he looked for the trouble in the females in preference to the bulls. Mr. Gould dealt with that subject also, and while he agreed with him on the question of feeding, he was not so sure that he agreed with him on the question of warmth. Warmth was only a relative term. If a bull had adequate feeding, he did not think warmth played a great part, provided there was shelter. A bull kept in the open was probably fitter than one kept in a stuffy box.

What was a stock-getter was another question that interested him. From the opinions of some people he gathered that a bull that produced a calf from one cow could be considered a stock getter. He thought that this was ridiculous and likely to cause trouble in the future because he understood that some insurance companies would take that interpretation. He could foresee many people who had insured their bulls having trouble in making a successful claim if the bull had produced an occasional calf. Although such a bull might be classed as a stock getter, the animal would be of no practical value.

Regarding the slow bull, slowness was surely an unsoundness in a bull. One would never buy a slow bull for an artificial insemination centre because it seemed very unlikely that such a bull would improve under the somewhat unnatural conditions under which he was worked.

Mr. N. J. Scorgie: Various speakers had described the rather dramatic improvement in "libido" which sometimes occurred in slow bulls following on the injection of 3,000 I.U. of pregnant mare serum and Dr. Amoroso had raised the question as to the mode of action of the hormone. The current view was that the effect of pregnant mare serum on the male gonads was largely confined to the spermatogenic tissue; if this view was correct then an indirect mode of action for pregnant mare serum in the stimulation of "libido" must be sought; this was most likely to occur through the mediation of the anterior pituitary whereby an increased liberation of the interstitital cell stimulating hormone occurred and which resulted in stimulation of the gonads to further production of androsterone. No mention was made by the speakers regarding the effect of pregnant mare serum on fertility in connection with the cases which they cited. It was clear, too, from what had been said that the improvement in "libido" was only temporary; possibly a more lasting result might be obtained if the injection of pregnant mare serum was followed by a course of injections of ascorbic acid, for certain American workers have claimed that the injection of pregnant mare serum is followed by a depression in the blood plasma ascorbic acid level for a period lasting up to three to four weeks.

One could only accept the hereditary nature of the blindness in bulls, described by Prof. McCunn, with a certain amount of scepticism. Prof. Wooldridge, who also referred to this condition, seemed to be far less satisfied that the condition was hereditary. A more likely etiology was that the blindness was connected with vitamin A deficiency. Both speakers had indicated that the condition was more commonly met with in Jerseys and Guernseys than in other breeds. This observation was in line with what was known about the vitamin A and carotene requirements of the various breeds of cattle; there was some evidence that the carotene requirements of the Jersey and Guernsey breeds were higher than those of Friesians, possibly due to the less efficient conversion of carotene to vitamin A by the former two breeds. As to why the condition was met with more frequently in bulls than in cows, one had only to remember that bulls seldom had access to pasture and, therefore, had less opportunity of acquiring vitamin A reserves.

Dr. Amoroso had asked whether the hyaluronidase content of the semen of the three totally sterile bulls producing apparently "normal" semen had been determined. This had not been done. The function attributed to hyaluronidase in the fertilisation process of rodents did not wholly apply to cattle, for the ova in the latter species were not liberated into the Fallopian tube surrounded by cumulus cells, as was the case in rodents. Possibly hyaluronidase played some part in the penetration of the egg by the sperm, but as yet such a function was hypothetical.

Professor McCunn and others had focused attention on the heart, and had suggested that examination of this organ should form part of the routine examination of bulls. It was difficult, however, to accept Prof. McCunn's implication that since heart failure was a common cause of death in thoroughbred stallions, the considerations with regard to the heart of the bull were analogous. Heart failure in the thoroughbred stallion could surely be related to the racing career of the animal. It would be interesting, however, to have exact determinations made on the effect of the sexual stimulus on heart rate in bulls under various conditions of test.

Mr. Stewart had mentioned finding of *T. foetus* in the semen of infected bulls. With regard to the more general question of the isolation of *T. foetus* from the preputial cavity of the bull as well as from semen, it would be well to exercise care in identifying as *T. foetus*, from this fact alone, any protozoan organism showing flagellar movement in material obtained from this site. There were numerous other protozoa which might be confused with *T. foetus* and which frequently had the preputial cavity as a habitat (see Morgan, B. B., and Noland, L. E., *J. Amer. vet. med. Ass.* (1943.) **102.** 11-15).

QUESTIONS IN PARLIAMENT

Students (Release from the Services)

Mr. Jennings asked the Minister of Labour whether, in view of the shortage of professional students, he will institute a scheme for the release from the Services of professional students who have not had the benefit of deferment, in order to allow them to qualify.

The answer, circulated in the Official Report by Mr. Isaacs, stated that among the students eligible for release in Class B were students in medicine, dentistry and veterinary surgery recommended by their Universities or the appropriate Schools who either:—

(1) Gave up their reservation to join the Forces, or

(2) Joined the Forces before the present conditions of reservation were in operation, but would have been reserved if they had been in force.

Only men in release groups 1 to 49 (*i.e.*, with substantially three years' service) were eligible, and he was considering whether it would be possible to extend these arrangements to certain classes of professional students.

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Bloodstock Sales (Purchase Tax)

Mr. Maurice Webb asked the Chancellor of the Exchequer whether he will make sales of bloodstock subject to Purchase Tax.

Mr. Dalton: I am advised that there are certain administrative difficulties, but I am considering my hon. Friend's suggestion.

Mr. Webb: While thanking my right hon. Friend for his reply, may I ask him whether, in considering the question, he will bear in mind the need for equating the position of electors in Bishop Auckland, who must pay Purchase Tax on boots and shoes, with that of rich Indian Princes who have just spent up to 28,000 guineas on yearlings without paying any Purchase Tax at all?

Mr. Dalton: I appreciate the intention behind my hon. Friend's Question, but I would remind him that utility footwear was exempted from Purchase Tax some years ago. In this particular case, the difficulty is that up to now Purchase Tax has not been levied upon animals of any kind, but I am looking into the matter.

Benjamin Ward Richardson Lecture.—This lecture, under the auspices of the Royal Sanitary Institute, will be delivered on November 14th, 1945, at 2.30 p.m., at the Institute. Discussion on "The Economic and Public Health Advantages of Centralised Slaughtering," to be opened by Major W. Brennan DeVine, M.C., F.R.C.V.S., D.V.S.M., Chief Veterinary Officer, Birmingham. Lt.-Col. J. A. Dixon, T.D., M.R.C.V.S., will be in the chair.

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The Wellcome Historical Medical Museum has arranged to publish, in conjunction with the Oxford University Press, a work on "The Development of Inhalation Anaesthesia" from 1846 to 1900. The book is to be the first of the Museum's post-war series of research studies in the history of medicine.

CLINICAL COMMUNICATION

Suspected Grass Sickness in Northants

J. H. ELLIS and C. T. COOPER
Wellingborough

These two cases are interesting in that they bear marked resemblance to that recorded by W. A. Dickinson, of Peterborough, in 1942, and give further evidence of the spread of the disease southwards.

Case 1. (C. T. C.).

Subject.—An eleven-year-old cart gelding used for light farm work which had been at grass for three months.

Symptoms.—Seen by the owner at grass at 11 a.m. on August 6th standing with all four legs bunched underneath him, sweating profusely and with fluid ingesta running from the nostrils following frequent attempts at regurgitation. When seen that evening he was standing quietly, showing patchy sweating, temperature 101° F., with fluid still returning from the nostrils. He had not been seen to stale or pass faeces during the day, bowel sounds were absent and rectal examination revealed the colon to be firm but not impacted and hard faeces in the rectum. The stomach tube was passed without difficulty and almost a gallon of fluid drained away. The owner reported him to be easier by night; sweating had ceased but he appeared dull and depressed and there had been no bowel action. He died during the night in considerable pain.

Post-mortem Examination.—These findings were indefinite. There was severe gastritis but the stomach was not distended. Some enteritis was present and most of the bowel contents were fluid except the colon, which contained solid material. The spleen was more than twice its normal size and the lungs and kidneys showed marked congestion.

Case 2. (J. H. E.).

Subject.—A six-year-old pony gelding lying out at grass and doing light work in a float.

Symptoms.—He was found on the morning of August 28th in a sitting position in the field, retching, with fluid ingesta coming from the nostrils. Later in the day he evinced pain, patchy sweating, tremors and continued retching with grunting and squealing. By midnight he was more comfortable; retching and sweating had ceased, but there had been no action of the bowels or borborygmus during the day. He staled twice in the night and appeared much easier on the morning of 29th, when, although very thirsty, he was unable to swallow water. Later in the day subacute pain returned and retching with flow of fluid from the nostrils recommenced, though without much pain in the act. There was little change on the 30th, there being still no sign of bowel movement although some flatus was passed. Rectal examination, which was indefinite in the early stages, now showed hard faecal masses in the large colon and rectum. During the day slight borborygmus was observed in the right flank after giving water and salt solution by the stomach tube and in the night he defaecated twice. On the morning of the 31st there was evidence of good bowel movement though the general condition was considerably weaker, the pony appearing almost exhausted. Respirations were rapid and laboured and it was thought that an inhalation pneumonia was supervening. The pony collapsed and died in severe pain at midday.

Throughout the course the temperature varied from 99 to 102·5, the pulse was very weak and rapid; the membranes were a dirty brick red colour until the last day, when they were slightly paler than normal. There was not at any time difficulty in passing the stomach tube and fairly large quantities of salt solution and water were given by gravity without any discomfort.

Post-mortem Examination.—This showed acute congestion of the lungs with a few small areas of commencing gangrene, heart muscle greatly thickened and spleen enlarged. There was marked gastritis, the stomach being distended with fluid, and some enteritis with evidence of corrugation. All bowel contents were fluid.

Discussion.—Unfortunately, we have never seen a confirmed case of grass sickness, but in view of the symptoms recorded above, the lack of any real *post-mortem* evidence as to the cause of the illness and the complete failure of the usual treatments to produce movement of the bowels, we feel justified in suspecting this disease. We hope that this note may stimulate other members who may have seen similar cases to record their observations.

Weekly Wisdom

***There can be no monopoly of the laws of nature.*—Dr. A. V. Hill, Secretary of the Royal Society (addressing the Parliamentary and Scientific Committee).**

Questions and Answers

"Questions and Answers" will be published on alternate weeks.
The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.
Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.
All communications should be addressed to the Editor.

Roaring in Cattle

Q. CXV.—*"Roaring" in cattle is a fairly common condition associated with enlargement of retropharyngeal lymph glands, or an abscess dorsal to the pharynx.*

Some few cases respond to treatment with iodides, suggesting actinomycosis as the cause.

Are the majority of such cases tuberculous; if so, what action should a practitioner take when they are not associated with a cough or emaciation?

A.—(1) Roaring in cattle associated with enlargement of retropharyngeal lymph glands, or an abscess dorsal to the pharynx, is a fairly common condition, and in the writer's experience in commercial herds about 50 per cent. of the cases are due to tuberculosis.

A proportion of cases appear to be due to actinobacillosis and respond to iodides. In other cases in which encapsuled abscesses appear, streptococcic infection appears to be responsible. Such cases of encapsuled abscesses do not, as would be expected, respond to sulphonamides. When such cases are met, the general condition of the animal should be considered and efforts made to make a differential diagnosis by clinical examination, sputum tests and examination of the pus from a freshly opened abscess where this is possible. A positive reaction to the tuberculin test would not necessarily mean that the abscess was a tuberculous lesion. Rapid response to iodides would give an indication as to differential diagnosis.

(2) "Roaring" must be distinguished from "snoring" which is a milder type of the same condition. Roaring is almost always due to retropharyngeal abscess but snoring may also be a habit of fat, short-necked dairy cows and non-pathological. It is usually intermittent in these cases.

Retropharyngeal abscesses can be punctured, using a mouth gag and a straight embryotomy knife fitted with a finger ring. The pus may be examined microscopically but even in cases of tuberculosis, tubercle bacilli may not be demonstrable. After evacuation of the abscess the animal should be prepared for the butcher if possible, as retropharyngeal abscess is frequently an early manifestation of tuberculosis, often appearing before lesions become widespread.

Such cases cannot be taken under the Tuberculosis Order, unless cough and definite clinical signs of tuberculosis or tuberculous emaciation are co-existent.

Drying-off of Filly Foal

Q. CXVI.—*In May, 1945, a filly foal was born to a Suffolk mare belonging to a client of mine. The foal had well-developed mammary glands which on palpation were found to be full of a clear watery fluid. Within a few days the foal was secreting what to all intents and purposes was normal milk. The milk was not drawn except to take a small sample for examination. In June a typical streptococcal mastitis developed in one gland; this was treated and apparently cured with sulphanilamide and acriflavine irrigation. In July it re-occurred in the other gland and has again cleared up, but there is no diminution of the milk secretion. The foal is in excellent health and doing well and apart from a day or so off colour with a slight temperature at each attack of mastitis, has never shown any signs of ill-health. I have tried several times to dry her off and used stilboestrol and acriflavine irrigation with no success. Can you suggest how I can stop this flow of milk?*

A.—The occurrence of lactation in the filly foal has been reported from time to time, but as a rule the secretion of milk stops and the glands return to normal in ten days to a fortnight, if the glands are not interfered with at all. This is what happens in the adult female, as a rule, when her offspring is, for example, born dead, and the milk is not drawn off. In this case, however, which has been complicated by an attack of mastitis, the secretion has probably been further stimulated by the necessity for the withdrawal of the milk.

Presumably milk secretion in the filly foal is due to the fact that during gestation the gland has been induced by the maternal oestrogens to develop to such a degree that when their influence is removed soon after birth, the foal's own anterior pituitary is sufficiently active to stimulate true milk secretion. Theoretically at any rate, the administration of full doses of synthetic oestrogen should inhibit the pituitary and stop milk secretion. Such treatment is effectively used in human medicine, but apart from a few observations on cows little attention has been given to this question in veterinary medicine. From the contributor's remarks, it is gathered that the milk is now free of bacteria, and if this is so full doses of synthetic oestrogen might be given to inhibit the pituitary, and a determined effort should be made to dry the foal off, half milking the foal out night and morning for two days, then drawing about half off once daily for two days, then omitting to draw off at all for 24 hours, when she would be just eased, and then let go for several days before touching her again.

Recently two other substances, dienoestrol and triphenyl chloroethylene, have been found to possess greater activity in this connection than stilboestrol and perhaps one or other of them deserves a trial in this case.

Before injecting stilboestrol or using dienoestrol or triphenyl chloroethylene Burroughs Wellcome should be consulted as to the *minimum* doses likely to be effective.

Non-Specific Protein Therapy

Q. CXVII.—*Will you please give me as much information as possible regarding non-specific protein therapy?*

A.—It has been known for many years that an attack of an acute disease frequently will ameliorate or remove the symptoms of a chronic infection. Many clinicians and other workers have attempted, with no small measure of success, to treat infections by the introduction of some protein substance which will produce a defensive reaction (rise of temperature, leucocytosis, etc.) and enable the patient to desensitise or immunise itself.

Invasion of the body by pathogenic organisms produces—as a measure of self-help—a defensive reaction which varies according to the nature, quantity and virulence of the invading germs. If the body is able to respond quickly to the stimulus of the bacteria which have gained access to it, and to summon to its aid the fullest possible measure of natural protective substances, then the invader becomes avirulent for that body.

When, on the contrary, the capacity of the body to do this is diminished from any cause (constitution, chill, under-nourishment, fatigue, etc.) then the invading organism becomes for that body highly virulent and destructive.

We can support the body in its fight by means of non-specific stimulation therapy. Among the numerous substances which have been employed to produce this protein shock are: (1) peptones; (2) milk and preparations made from milk; (3) vaccines (used non-specifically); (4) artificially induced diseases; (5) blood; (6) vegetable and animal proteins.

Many proprietary non-specific substances of this kind are available to the veterinarian, among the more popular of which appear to be Omnadin, Yatren vaccine, S.U.P. 36, Antibacsyn, Davenil, Paragen, Aolan, Edwenil, etc., all of which—in appropriate cases—have given consistently good results in the writer's hands.

In an emergency, and in the absence of one of these proprietary articles, one may boil ordinary milk and inject 1 c.c. of this intramuscularly in small animals or larger doses in horses or cattle. This is a course to which one has often had to resort when called out at midnight, and perhaps miles from some source of supply.

These non-specific protective substances offer the possibility of extensive use in diseases of varied etiology; whilst the effect of the specific stimulation produced by antibodies and antitoxins (serum therapy) and by specific vaccines, is limited to certain micro-organisms.

The indications for their use are acute febrile diseases (especially infectious diseases), *e.g.*, pneumonia, pleurisy, bronchitis, gastro-enteritis, metritis, mastitis, cellulitis, distemper, etc.; suppurations and purulent inflammations such as wound infections, abscesses, fistulae, furunculosis and acne; and non-infectious inflammatory processes, as dermatitis, arthritis, periostitis and bursitis, etc.

Frequently the surgeon, at his first examination, may be in great doubt as to the cause of the fever or other acute symptoms exhibited. He will require a little time to see what will develop; but his client usually expects an immediate diagnosis, and certainly some impressive attempt at cure.

In such circumstances an injection of Omnadin or something similar will amply meet the case; and one will have rendered good service to the patient, and at the same time will have reassured the client.

Correspondence

Injection of Lugol's Iodine

Sir,—Here is a suggestion for blocked valves in enema syringes due to Lugol's iodine. Remove the valve nearest the catheter, as this is usually the troublesome one, using the finger and thumb of the hand holding the catheter instead.

A plan tube, as used by architects, is a useful thing to keep the apparatus clean whilst in the car: it is of sufficient length to accommodate catheter and syringe.

Yours faithfully,

26, Willow Street, Oswestry. R. Eastwood.
September 27th, 1945.

Sir,—I notice in the "Q and A." column of the *Record* dated September 22nd, 1945, that a correspondent finds the enema pump unsuitable for uterine irrigations, as the valves become blocked. This can be easily overcome by using the apparatus of the kind manufactured by various well-known firms for calcium injection instead of an enema pump. Although this apparatus consists partly of rubber tubing which will in time perish, it can be easily replaced. There are no valves to become blocked and cause embarrassment in the middle of an operation and the continuous flow can be interrupted by nipping the rubber tubing at the catheter end, either by hand or using a spring clip. This apparatus can be adapted to the needs of the operator either by varying the size of the bottle or the length of the rubber tubing.

Yours faithfully,

D. L. Stewart.

The Reading Centre for the Artificial Insemination of Dairy Cattle.

September 26th, 1945.

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Sir,—In connection with Question CXI in which the questioner seeks a remedy for the injurious action of Lugol's iodine on the valves of enema pumps, I have found that pumping the following antiseptic oil through the syringe before use greatly lengthens the life of the rubber and the valves:—

Creosote	dr.	2
Terebene	oz.	8
White Vaseline Oil (Paraf. liq.) ...	oz.	20

Presumably the coating of oil keeps the iodine from direct contact with the metal and rubber, and the same bottle of oil may be used repeatedly to avoid waste.

"Harvest-mite"

Question CIX, dealing with "harvest-mite," brings up a subject which appears to have been sadly neglected in all available literature. I can find no reference to any lethal toxic properties exhibited by these mites, yet for several years now I have had a number of cases in dogs ranging from mild illness to sudden death which I am convinced are directly due to these mites. There is always a history of the dog having been amongst bracken, vomiting starts a few hours later, severe depression rapidly ensues, followed by collapse and death. If untreated, death occurs in from 12 to 72 hours. The condition has occurred so frequently in my experience that whenever a dog is presented with a simple history of vomiting—at any time during late summer and autumn—I immediately examine the skin between the toes, the ear flaps and the muzzle for the presence of the bright orange-coloured mite. These are usually found in clusters in the positions just named.

Treatment is successful if applied early and consists of a local application of chloroform which kills the mites instantly, stomach sedatives (bismuth, etc.), and general stimulants.

I should be interested to learn if other practitioners have recorded this condition associated with the presence of harvest-mites.

Yours faithfully,

G. N. Shirley.

2, Wellington Villas, Crewe, Cheshire.

September 30th, 1945.

A "GOOD LUCK" STORY

The sale at Newmarket early this month of a yearling colt by Pactolus—Sister Clara for 1,600 guineas, completed the story of what one popular morning paper terms "one of the greatest instances of good luck which has been associated with bloodstock breeding," and proceeds: "It began in 1939, during a slump in racing values. Major E. C. Doyle, D.S.O., former amateur rider, and now a veterinary surgeon at Epsom, attended Goff's sales in Ireland. The breeding of a yearling filly by Scarlet Tiger—Clarence, named Sister Clara, appealed to him, and he bought her for 20 guineas. She was not raced because of the war, so was turned out, and eventually sent to the stud. In the meantime, racing had begun to prosper again, and a filly named Sun Chariot, who was out of the same mare as Sister Clara, was winning race after race in the King's colours in England. After Sun Chariot had set the seal on her fame by winning the 1,000 Guineas, Oaks and St. Leger, Major Doyle thought it was time to sell his mare, from whom he had bred a filly and a colt. Sister Clara was sent to Newmarket, and she was sold for 11,000 guineas. Later her filly, Sarah Clara, was put in the sale ring as a yearling, and she fetched 6,600 guineas. On October 4th he sold the colt for 1,600 guineas, thus making on his outlay of £21 the fantastic profit of £19,179, a shilling of every guinea received from the sales going to the auctioneers."

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Oct. 23rd.—Scientific Meeting of the Zoological Society of London, Regent s Park, N.W.8, 5 p.m.
Oct. 24th.—Annual General Meeting of the Scottish Branch,
Oct. 26th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds (Hotel Metropole), 2.30 p.m.
N.V.M.A., at Edinburgh ("Dick" College), 2.30 p.m.
Oct. 31st.—Meeting of the Lancashire Division, N.V.M.A., at Manchester (Grand Hotel), 2.30 p.m.
Nov. 1st.—Meeting of the Central Veterinary Society, at the Conway Hall, Red Lion Square, W.C.1, 2 p.m.
Nov. 2nd (alteration from 1st).—N.V.M.A. Sub-committee on First-Aid Handbook, 10 a.m.; N.V.M.A. Finance and General Purposes Committee, 1 p.m.
Nov. 6th.—R.C.V.S. Animal Management Examinations.
Nov. 13th.—Autumn Meeting of the Eastern Counties Division, N.V.M.A., at Thetford (Guildhall), 2 p.m.
Nov. 14th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.
Nov. 17th.—Annual Meeting of the Society of Women Veterinary Surgeons, 69, Great Peter Street, Westminster, 2.15 p.m.
Dec. 4th.—R.C.V.S. Written Examinations.
Dec. 5th.—R.C.V.S. Written Examinations.

* * * * *

Scheme for the Control of Certain Diseases of Dairy Cattle in Scotland

As announced in our last issue, the Executive of the National Veterinary Medical Association, after agreement with the National Farmers' Union and Chamber of Agriculture for Scotland and the Ministry of Agriculture and Fisheries, recommends that undertakings under the Scheme for the Control of Certain Diseases of Dairy Cattle in Scotland, which are due to lapse, and which both parties are willing to renew on the basis of existing agreements, should be extended for twelve months.

This would mean that in respect of two or three years' undertakings, the 10 per cent. and 20 per cent. rebates respectively will continue to operate.

* * * * *

PERSONAL

Appointment.—Dr. W. P. Blount, PH.D., F.R.C.V.S., has been appointed Poultry Adviser to The British Oil & Cake Mills, Ltd.

Dr. Blount has been a Member of the Royal College of Veterinary Surgeons since 1928 and a Fellow of that College since 1931. He is a Doctor of Philosophy, Faculty of Medicine, Edinburgh University, 1938, and was educated both there and at the Royal (Dick) Veterinary College, Edinburgh. He has spent 13 years on teaching, practice and administration in small-animal breeding and disease control, with ten years specialising in laboratory diagnosis, research and general field investigation in poultry breeding and farming.

Up to the outbreak of the war he was Chief Veterinary Officer to the East Sussex County Council and during the war has held important Government posts as Major R.A.V.C., dealing with animal breeding and chemical warfare in its application to Army Animals and farm stock. He previously held a number of posts, both research and veterinary, concerned specially with poultry breeding, and has written several publications on the subject.

Dr. Bullock's Illness.—Since the intimation of the serious illness of Dr. Fred Bullock, Secretary and Registrar of the R.C.V.S., made in our issue of September 8th, we regret to say that he has not progressed as rapidly as all had hoped. At the September meeting of the Royal College a committee, consisting of the President and Past-Presidents, was appointed, with power to act, to consider the arrangements necessary pending Dr. Bullock's return which, it is now feared, will be postponed at least until the New Year. Our readers will wish us to express, on their behalf, much sympathy with Dr. and Mrs. Bullock in this trying time.

Erratum.—It is regretted that, in our issue of October 6th, Mr. John Weir, M.R.C.V.S., D.V.S.M., of Hamilton, Lanarks, Divisional Inspector of the Animal Health Division of the Ministry of Agriculture, was erroneously stated to have been appointed "Superintending Veterinary Officer" in charge of the Southern Counties named. This designation should have read "Acting Superintending Veterinary Inspector."

* * * * *

R.C.V.S. OBITUARY

Hadfield, R. W., Capt., late R.A.V.C., Noran Bank, Patterdale, Penrith. Graduated Edinburgh May 18th, 1898. Died September 8th, 1945.

WAKEHAM, William Robert Bruce, B.V.SC., Capt. A.A.V.C., 1, Swain Avenue, Adelaide, South Australia. Graduated London July 20th, 1906. 1945 Voting Paper returned marked "Deceased."

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CONTAGIOUS ABORTION: CALF VACCINATION SCHEME

For some time priority has been given under this Scheme to the vaccination of bulling heifers whenever the supply of vaccine has been insufficient either generally or locally. This arrangement has created the erroneous impression in some quarters that no vaccine is available for the inoculation of calves, states the Ministry of Agriculture, which adds that, in view of the importance of protecting heifers before they are served, priority will continue to be given to the vaccination of bulling heifers, but larger supplies of vaccine are now available, and as far as possible all young stock eligible under the Scheme will be vaccinated.

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SCHEME FOR THE CONTROL OF DISEASES OF DAIRY CATTLE

STATEMENT SHOWING THE NUMBER OF UNDERTAKINGS NOTIFIED TO THE MINISTRY OF AGRICULTURE DURING THE MONTH ENDED SEPTEMBER 30TH, 1945

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
ENGLAND					
Bedford	—	37	37	874	523
Berks	—	92	92	3,157	1,981
Bucks	—	97	97	3,214	1,924
Cambridge	—	10	10	190	79
Chester	5	382	387	12,861	4,817
Cornwall	—	4	4	72	75
Cumberland	—	63	63	1,603	1,359
Derby	1	329	330	9,635	5,393
Devon	5	309	314	4,649	2,780
Dorset	—	67	67	2,101	1,123
Durham	—	277	277	6,083	2,434
Essex	2	241	243	8,638	4,945
Gloucester	—	96	96	2,808	1,710
Hampshire	4	382	386	10,911	7,620
Hereford	—	18	18	339	216
Hertford	—	81	81	2,472	1,540
Hunts	—	8	8	263	197
Isle of Ely	—	2	2	58	29
Isle of Wight	—	14	14	252	127
Kent	3	172	175	4,324	2,635
Lancs	—	191	191	5,520	1,829
Leics	1	103	104	2,555	1,004
Lincs (Holland)	—	3	3	25	11
Lincs (Kesteven)	—	23	23	320	168
Lincs (Lindsey)	—	107	107	2,050	1,187
Middlesex	1	15	16	644	291
Norfolk	—	184	184	5,605	3,966
Northants	—	80	80	2,230	1,805
Northumberland	—	65	65	2,139	1,237
Notts	2	182	184	4,031	2,471
Oxford	—	45	45	1,237	1,087
Rutland	—	8	8	156	107
Salop	—	257	257	7,569	3,777
Soke of Peterborough	—	1	1	37	31
Somerset	2	242	244	6,503	3,082
Staffs	1	204	205	5,895	3,573
Suffolk, E.	—	85	85	2,042	1,460
Suffolk, W.	1	48	49	1,015	652
Surrey	1	104	105	3,075	1,448
Sussex, E.	—	177	177	4,423	2,739
Sussex, W.	1	106	107	3,103	1,871
Warwick	1	134	135	3,117	2,134
Westmorland	—	13	13	354	444
Wilts	—	85	85	3,436	1,645
Worcester	4	156	160	3,154	1,596
Yorks, E.R.	1	105	106	1,641	990
Yorks, N.R.	—	111	111	3,257	1,387
Yorks, W.R.	1	252	253	6,170	2,555
WALES					
Anglesey	—	49	49	868	623
Brecon	1	10	11	168	99
Caernarvon	—	110	110	1,721	954
Cardigan	—	27	27	499	353
Carmarthen	—	252	252	4,626	2,431
Denbigh	—	43	43	878	461
Flint	—	113	113	2,538	1,140
Glamorgan	—	105	105	1,728	716
Merioneth	—	9	9	117	55
Monmouth	—	54	54	1,272	713
Montgomery	—	15	15	294	233
Pembroke	1	59	60	1,177	844
Radnor	—	—	—	—	—
TOTALS	39	6,613	6,652	171,693	95,576

Notes.—(1) Operative periods of undertakings: 1 year, 1,328; 2 years, 493; 3 years, 4,831. (2) Undertakings renewed for a further period: 1 year, 1,343; 2 years, 202; 3 years, 376. (3) Undertakings not renewed at end of operative period, 1,009. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings, and do not include undertakings renewed for a further period. Undertakings which have been cancelled or not renewed are not included in the figures for previous notifications.

County	Undertakings Notified		Total Undertakings		
	During Month	Previously	Number	Number of Cattle	
				Cows	Heifers
SCOTLAND					
Aberdeen	—	20	20	930	330
Angus	—	21	21	838	395
Argyll	—	6	6	113	115
Ayr	—	27	27	880	657
Banff	—	2	2	10	—
Berwick	—	2	2	53	22
Bute	—	—	—	—	—
Caithness	—	—	—	—	—
Clackmannan	—	7	7	301	202
Dumfries	—	14	14	777	710
Dunbarton	—	3	3	105	86
East Lothian	—	3	3	145	88
Fife	—	33	33	1,242	661
Inverness	—	7	7	294	179
Kincardine	—	3	3	127	83
Kinross	—	3	3	56	40
Kirkcudbright	—	14	14	885	642
Lanark	—	19	19	730	549
Midlothian	—	1	1	44	69
Moray	—	—	—	—	—
Nairn	—	1	1	14	—
Orkney	—	—	—	—	—
Peebles	—	2	2	28	16
Perth	—	28	28	687	424
Renfrew	—	7	7	277	201
Ross-shire	—	2	2	58	52
Roxburgh	—	—	—	—	—
Selkirk	—	—	—	—	—
Stirling	—	29	29	925	771
Sutherland	—	4	4	80	44
West Lothian	—	1	1	23	18
Wigtown	—	27	27	1,783	1,030
Zetland	—	—	—	—	—
TOTALS	—	286	286	11,405	7,444

Notes.—(1) Duration of undertakings: 1 year, 37; 2 years, 9; 3 years, 240. (2) Undertakings renewed for a further period (included in column 2 of statement): 1 year, 41; 2 years, 6; 3 years, 10. (3) Undertakings expired and not renewed (not included in column 2 of statement): 94. (4) The figures showing the number of undertakings notified during the month relate to entirely fresh undertakings.

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ADDRESSES OF DISEASE-INFECTED PREMISES

FOOT-AND-MOUTH DISEASE:

Yorks.—Melbourne Grange, Melbourne, York (Oct. 14th).

SWINE FEVER:

Cornwall.—High Retallick, St. Columb Major (Oct. 10th).

Essex.—Saffron Gardens Farm, Horndon on the Hill, Stanford-le-Hope, Essex (Oct. 13th).

Glos.—Lyndale Cottage, Hawsley, Lydbrook (Oct. 10th); Edge Hills, Littledean (Oct. 11th); Oldcroft, Lydney (Oct. 12th); Arle Farm, Arle, Cheltenham (Oct. 13th).

Kent.—190, Birchwood Road, Wilmington, Dartford (Oct. 9th).

Lanarks.—2 Holding, Wester Boghead, Lenzie, Glasgow (Oct. 9th); 17 Holding, Auchenteoch, Milton of Campsie, Glasgow (Oct. 10th).

Lincs.—Caythorpe Lowfields, Grantham (Oct. 11th).

Middlesex.—2, Smallholdings, Clockhouse Lane, Ashford; Little Britain Piggeries, Packet Boat Lane, Cowley, Uxbridge (Oct. 10th).

Midlothian.—Southfield Farm, Barnton, Edinburgh (Oct. 10th).

Northants.—Church Street, Lutton, Peterborough (Oct. 13th).

Staffs.—Lodge Farm, Canons Ashby, Rugby (Oct. 9th).

Warwicks.—Wixford Lodge, Bidford-on-Avon (Oct. 9th).

Worcs.—Kingsford Farm, Wolverley, Kidderminster (Oct. 9th).

Yorks.—Smawthorne Allotments, Castleford (Oct. 12th); Prospect Farm, Back Lane, Holme-on-Spalding Moor, York (Oct. 13th).

SHEEP SCAB:

Denbighshire.—Glantanat Isa, Llangedwyn, Oswestry (Oct. 8th).

Merioneth.—Syrior Farm, Llandrillo; Branas Ucha Farm, Llandrillo (Oct. 8th).

Montgomery.—Castell Farm, Llanrhaiadr, Y.M. Oswestry; Tymawr Farm, Llangynog, Oswestry (Oct. 8th).

* * * * *

NEED FOR BETTER BEEF HERDS

There is a dire need to increase beef production, but this must be done in a correct manner, said Mr. Mervyn Davies, Chairman, W.A.E.C., at a beef cattle demonstration at Brecon.

Mr. R. O. Smith, Livestock Officer for Wales, also stressed the need for increasing beef production, but urged that care should be taken not to lower the standard of breeding. There was far too high a percentage of badly bred cattle which must and should be eliminated. Breconshire had the best type from which to breed and among the best pasture for feeding. By the elimination of bad cross-breeding and the better management of self-contained herds the standard would become higher.

INTERNATIONAL CONFERENCE ON FOOD AND AGRICULTURAL STATISTICS

An international conference on food and agricultural statistics, organised by the Emergency Economic Council for Europe in co-operation with U.N.R.R.A., the Interim Commission of the Food and Agricultural Organisation and the Combined Working Party on European Food Supplies, was held in London from September 17th to 22nd, reports the *Meat Trades Journal* of October 11th. Delegates from Canada, Belgium, Denmark, France, Luxemburg, the Netherlands, Norway, the United Kingdom and the United States, together with observers from Czechoslovakia, the U.S.S.R., Yugoslavia, the Combined Food Board and the Allied Missions in Germany, Austria and Italy, attended the meetings. The main object of the conference was to study methods of assembling comparable statistical material as rapidly as possible on the food and agricultural situation of the liberated countries for the purpose of facilitating an equitable distribution of supplies. The conference has also contributed to the advance of agricultural statistics generally since, in the course of its discussions, many of the problems involved in the compilation of statistics of food and agriculture came under review. The conference was opened by the Right Hon. Sir Ben Smith, the Minister of Food, who welcomed the delegates and stressed the importance of their work in the existing difficult food situation. Papers in English or French on problems of statistical methods were presented at full sessions of the conference, while detailed questions on the assembly of statistical material on crop and livestock production and on nutrition were studied by sub-committees. Returns to be completed periodically by countries were prepared and recommendations formulated to improve the machinery for the interchange of statistical information.

The work done in London, though of a provisional nature, will provide useful material for the Food and Agriculture Organisation and results of the Conference will be placed before that body at its inaugural meeting.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

* * * * *

PAINLESS DEHORNING WITH LOCAL ANAESTHESIA

Sir,—Through Quin's article (published in *The Veterinary Record* of October 6th, 1945) the above subject has very fittingly been brought to the notice of veterinary surgeons once more. As your footnote indicates, Emmerson first described the technique in 1933 and it would appear from your second footnote that Wright *et al.* had previously referred to it.

One is inclined to deduce that we were rather slow in not universally adopting this method, whereas it was fully demonstrated at the Derbyshire Veterinary Association meeting in April, 1936, and it was published in the *Record* of July 11th of that year.

The Animals (Anaesthetics) Act, 1919, it is true, makes no provision for any other than general anaesthesia, but then, this provides only one more argument for its revision.

One's conscience provides a fair index of the methods which may be adopted in humane operations on animals and I am quite clear that I have no qualms after dehorning by Emmerson's method.

Yours faithfully,

LINDSAY AUCHTERLONIE.

Little Orchard,
Whatton-in-the-Vale,
Near Nottingham.
September 8th, 1945.

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VIEWS OF DIVISIONS

Sir,—At the recent Annual General Meeting and in the discussion arising out of the recommendations of a committee that, amongst other things, the size of the Council be reduced, I made a plea for due consideration to be given to the views of Divisions. I pointed out that all Divisions had been asked to give the matter consideration and express their views and that 13 Divisions had done so. On the question of the size of the Council 12 of these 13 agreed that the size should be reduced and one only considered that the present constitution is satisfactory and should not be altered.

When the matter was put to the vote at the Annual General Meeting it was carried almost unanimously that no reduction be made in the size of the Council. I can give no figures as to the number present at the meeting, but I submit that the number was smaller than that of the 12 Divisions that had expressed the view that the Council should be reduced in size. From the voting at the meeting the logical conclusion was either that very few of the members of the 12 Divisions were present or that many of those that were present had not stood by the findings of their respective Divisions. I maintain that the consideration given to the matter by the Divisions was more thorough and more careful than that given to it at the Annual General Meeting and I feel that due consideration was not in fact given to the views of Divisions.

I raise the matter mainly in the hope that for the future when any matter is referred to Divisions the action to be taken on the particular matter be determined by consideration of the views of Divisions and by that only. If this cannot be attained I see little purpose in consulting Divisions upon anything.

Yours faithfully,

W. J. IRONSIDE.

Midland Agricultural College,
Sutton Bonington, Loughborough.
October 8th, 1945.

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VETERINARY EDUCATION

Sir,—I had the pleasure and privilege of attending the meeting on September 27th and of listening to the addresses by officers of the Colonial Veterinary Service, in which they recounted the valuable work they had performed in the development of agriculture in their respective territories and the part they had played in the war effort. It is safe to say that no other profession has excelled them or contributed more to the Empire's cause. And the thought came to me that these men, one and all, were educated at our existing veterinary colleges and were admitted to the profession *via* the "one portal" system of examination.

It was therefore with some surprise that I read in the Editorial of *The Times* of October 1st that one of our distinguished guests had thought fit to warn us that if we did not submit to the dictates of the Loveday Committee we might be made to do so. The Editorial read as follows:—

> "If the delay is due merely to differences between the leaders of the profession and the universities about the conduct of examinations, the Minister will, as Lord De La Warr suggested, receive the widest support if he overrules whoever may be responsible for the hold-up."

There has, it is true, been a lamentable "hold-up" owing to a protracted controversy between certain members of the profession as to whether we were willing to "sell our birthright for a mess of (university) pottage," but the profession at the recent election of Council demonstrated most clearly and emphatically that it was not prepared to do so. Nor is it necessary. I have it on the assurance, in writing, from one of the highest authorities in Veterinary Law, that "the only way in which we can be deprived of our present rights and privileges is by an Act of Parliament amending the existing Veterinary Surgeons Acts."

It is possible, of course, that such an amending Act might be "rushed through" Parliament, but it would be very unwise for Government to take such an arbitrary course and thereby alienate the goodwill, enthusiasm and support of the majority of our members in the all-important task which they alone can perform.

Would it not be wiser for Government to recognise the valuable services the profession has rendered in the past out of its own meagre resources, and to build upon the present sound foundation by supporting and generously subsidising existing institutions, rather than to sow dissension in its ranks and threaten to undermine its cherished rights and privileges?

The matter is one of great urgency. We are a small profession and the services expected of us are overwhelming. There are less than 3,000 properly qualified members of the profession to supervise some 40,000,000 head of livestock and their products, on some 400,000 farms. With the best intentions in the world there are far too few of us to accomplish this Herculean task with the necessary efficiency. A vast number of graduates of the right sort, that is, men with adequate academic qualifications *and practical experience*, are required. But the present state of uncertainty does not attract them. It will take a long time to produce such men, and even universities cannot supply practical experience ready made.

There can be no doubt that the future welfare of this country depends upon the restoration of a progressive and prosperous agriculture and the resuscitation of the pastoral industry. To this end an efficient Veterinary Service is indispensable. Surely it is a short-sighted policy to discourage the profession by constant threats to deprive it of its well-deserved and cherished rights and privileges.

Yours faithfully,

LL. E. W. BEVAN.

Little Common, Sussex.
October 5th, 1945.